# ABSTRACT

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Diploma thesis title: Particles with antimicrobial silver

The theoretical part of this diploma thesis outlines a brief overview of recent findings on silver nanoparticles. Further, it concerns the kinetic properties of colloidal systems, methods of evaluating the size and shape of colloidal particles, mechanism of antimicrobial activity of colloidal silver and methods of preparation of nanoparticles. Concise information about the toxicity of silver nanoparticles and their impact on the environment is also included.

In the experimental part comprehensive report on the results of measurements of granulometric characteristics of microparticles and nanoparticles by photon correlation spectroscopy (PCS) is included. The influence of various modifications of preparation procedures and processing on stability, size and the polydispersity of the size in terms of the volume and intensity diameter of the particles with elemental silver deposited on the surface was studied.

Optimisation of the disperse system, quality control of the content of colloidal particles by subsequent reduction, the possibilities of using centrifuge and ultrasound in the processing of particles and surface modification of particles by alkalisation and acidification of the solutions are also referred.